

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Withdrawn) A fluorescent protein derived from *Montipora* sp., which has the following properties:

- [1] the excitation maximum wavelength is 507 nm;
- [2] the fluorescence maximum wavelength is 517 nm;
- [3] the molar absorption coefficient at 507 nm is 104,050;
- [4] the quantum yield is 0.29; and
- [5] the pH sensitivity of light absorption property is pKa of approximately 5.5.

2. (Withdrawn) A fluorescent protein derived from *Acropora* sp., which has the following properties:

- [1] the excitation maximum wavelength is 505 nm;
- [2] the fluorescence maximum wavelength is 516 nm;
- [3] the molar absorption coefficient at 505 nm is 53,600;
- [4] the quantum yield is 0.67; and
- [5] the pH sensitivity of light absorption property is pKa of approximately 6.4.

3. (Withdrawn) A fluorescent protein derived from *Acropora* sp., which has the following properties:

- [1] the excitation maximum wavelength is 472 nm;
- [2] the fluorescence maximum wavelength is 496 nm;
- [3] the molar absorption coefficient at 472 nm is 27,250;
- [4] the quantum yield is 0.90; and
- [5] the pH sensitivity of light absorption property is pKa of approximately 6.6.

4. (Withdrawn) A fluorescent protein derived from *Montipora* sp., which has the following properties:

- [1] the excitation maximum wavelength is 557 nm;
- [2] the fluorescence maximum wavelength is 574 nm;
- [3] the molar absorption coefficient at 557 nm is 41,750;
- [4] the quantum yield is 0.41; and
- [5] the pH sensitivity of light absorption property is $pK_a < \text{approximately } 4.0$.

5. (Withdrawn) A chromoprotein derived from *Actinia equina*, which has the following properties:

- [1] the absorption maximum wavelength is 592 nm;
- [2] the molar absorption coefficient at 592 nm is 87,000; and
- [3] the pH sensitivity of light absorption property is stable in the range between pH 5 and 10.

6. (Withdrawn) A fluorescent protein derived from *Lobophytum crassum*, which has the following properties:

- [1] the excitation maximum wavelength is 482 nm;
- [2] the fluorescence maximum wavelength is 498 nm;
- [3] the molar absorption coefficient at 482 nm is 71,000;
- [4] the quantum yield is 0.41; and
- [5] the pH sensitivity of the fluorescence maximum is stable in the range between pH 4 and 10.

7. (Withdrawn) A fluorescent protein having either the following amino acid sequence (a) or (b):

- (a) an amino acid sequence shown in SEQ ID NO: 1; or
- (b) an amino acid sequence, which comprises a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1, and which has a fluorescence.

8. (Withdrawn) An isolated fluorescent protein having either the following amino acid sequence (a) or (b):

(a) an amino acid sequence shown in SEQ ID NO: 3; or

(b) an amino acid sequence, which comprises a deletion, substitution, and/or addition of one to ten amino acids with respect to the amino acid sequence shown in SEQ ID NO: 3, and which has a fluorescence.

9. (Withdrawn – Currently Amended) An isolated fluorescent protein having either the following amino acid sequence (a) or (b):

(a) an amino acid sequence shown in SEQ ID NO: 5 ~~or 7~~; or

(b) an amino acid sequence, which comprises a deletion, substitution, and/or addition of one to ten amino acids with respect to the amino acid sequence shown in SEQ ID NO: 5 ~~or 7~~, and which has a fluorescence.

10. (Withdrawn) A fluorescent protein having either the following amino acid sequence (a) or (b):

(a) an amino acid sequence shown in SEQ ID NO: 9; or

(b) an amino acid sequence, which comprises a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 9, and which has a fluorescence.

11. (Withdrawn) A chromoprotein having either the following amino acid sequence (a) or (b):

(a) an amino acid sequence shown in SEQ ID NO: 11; or

(b) an amino acid sequence, which comprises a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 11, and which has light-absorbing properties.

12. (Withdrawn) A fluorescent protein having either the following amino acid sequence (a) or (b):

(a) an amino acid sequence shown in SEQ ID NO: 13; or

(b) an amino acid sequence, which comprises a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 13, and which has fluorescence.

13. (Withdrawn) DNA encoding the protein according to claim 1.

14. (Withdrawn) DNA of either the following (a) or (b):

(a) DNA encoding an amino acid sequence shown in SEQ ID NO: 1; or

(b) DNA which has an amino acid sequence comprising a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1, and which encodes a fluorescent protein.

15. (Withdrawn) DNA having either the following nucleotide sequence (a) or (b):

(a) a nucleotide sequence shown in SEQ ID NO: 2; or

(b) a nucleotide sequence which comprises a deletion, substitution, and/or addition of one or several nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 2, and which encodes a fluorescent protein.

16. (Withdrawn) An isolated DNA of either the following (a) or (b):

(a) DNA encoding an amino acid sequence shown in SEQ ID NO: 3; or

(b) DNA encoding an amino acid sequence comprising a deletion, substitution, and/or addition of one to ten amino acids with respect to the amino acid sequence shown in SEQ ID NO: 3, and which encodes a fluorescent protein.

17. (Withdrawn) An isolated DNA having either the following nucleotide sequence (a) or (b):

(a) a nucleotide sequence shown in SEQ ID NO: 4; or

(b) a nucleotide sequence which comprises a deletion, substitution, and/or addition of one to thirty nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 4, and which encodes a fluorescent protein.

18. (Currently Amended) An isolated DNA of either the following (a) or (b):
- (a) DNA encoding an amino acid sequence shown in SEQ ID NO: 5 ~~or~~ 7; or
 - (b) DNA encoding an amino acid sequence comprising a deletion, substitution, and/or addition of one to ten amino acids with respect to the amino acid sequence shown in SEQ ID NO: 5 ~~or~~ 7, and which encodes a fluorescent protein.
19. (Currently Amended) An isolated DNA having either the following nucleotide sequence (a) or (b):
- (a) a nucleotide sequence shown in SEQ ID NO: 6 ~~or~~ 8; or
 - (b) a nucleotide sequence which comprises a deletion, substitution, and/or addition of one to thirty nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 6 ~~or~~ 8, and which encodes a fluorescent protein.
20. (Withdrawn) DNA of either the following (a) or (b):
- (a) DNA encoding an amino acid sequence shown in SEQ ID NO: 9; or
 - (b) DNA which has an amino acid sequence comprising a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 9, and which encodes a fluorescent protein.
21. (Withdrawn) DNA having either the following nucleotide sequence (a) or (b):
- (a) a nucleotide sequence shown in SEQ ID NO: 10; or
 - (b) a nucleotide sequence which comprises a deletion, substitution, and/or addition of one or several nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 10, and which encodes a fluorescent protein.
22. (Withdrawn) DNA of either the following (a) or (b):
- (a) DNA encoding an amino acid sequence shown in SEQ ID NO: 11; or
 - (b) DNA which has an amino acid sequence comprising a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 11, and which encodes a protein having light-absorbing properties.

23. (Withdrawn) DNA having either the following nucleotide sequence (a) or (b):
- (a) a nucleotide sequence shown in SEQ ID NO: 12; or
 - (b) a nucleotide sequence which comprises a deletion, substitution, and/or addition of one or several nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 12, and which encodes a protein having light-absorbing properties.
24. (Withdrawn) DNA of either the following (a) or (b):
- (a) DNA encoding an amino acid sequence shown in SEQ ID NO: 13; or
 - (b) DNA which has an amino acid sequence comprising a deletion, substitution, and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 13, and which encodes a fluorescent protein.
25. (Withdrawn) DNA having either the following nucleotide sequence (a) or (b):
- (a) a nucleotide sequence shown in SEQ ID NO: 14; or
 - (b) a nucleotide sequence which comprises a deletion, substitution, and/or addition of one or several nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 14, and which encodes a fluorescent protein.
26. (Withdrawn) A recombinant vector having the DNA according to claim 13.
27. (Withdrawn) A transformant having the DNA according to claim 13.
28. (Withdrawn) A fusion fluorescent protein, which consists of the fluorescent protein according to claim 1 and another protein.
29. (Withdrawn) The fusion fluorescent protein according to claim 28, wherein another protein is a protein that localizes in a cell.
30. (Withdrawn) The fusion fluorescent protein according to claim 28, wherein another protein is a protein specific to a cell organelle.

31. (Withdrawn) A fusion protein, which consists of the chromoprotein according to claim 5 and another protein.

32. (Withdrawn) A method for analyzing the localization or dynamics of a protein in a cell, which is characterized in that the fusion fluorescent protein according to claim 28 is allowed to express in the cell.

33. (Withdrawn) A method for analyzing physiologically active substances, which is characterized in that the FRET (fluorescence resonance energy transfer) method is carried out using the chromoprotein according to claim 5 as an acceptor protein.

34. (Withdrawn) A fluorescent reagent kit, which comprises: the fluorescent protein of claim 1.

35. (Withdrawn) An absorbance reagent kit, which comprises: the chromoprotein of claim 5.

36. (Currently Amended) The isolated DNA according to claim 18, which encodes an amino acid sequence comprising a deletion, substitution, and/or addition of one to five amino acids with respect to the amino acid sequence shown in SEQ ID NO: 5 ~~or~~ 7, and which encodes a fluorescent protein.

37. (Currently Amended) The isolated DNA according to claim 19, which has a nucleotide sequence which comprises a deletion, substitution, and/or addition of one to fifteen nucleotides with respect to the nucleotide sequence shown in SEQ ID NO: 6 ~~or~~ 8, and which encodes a fluorescent protein.